



RENEWING HeALTH

REgIoNs of Europe WorkINg
toGether for HEALTH

RENEWING HEALTH: telemedicine services for people with long-term health conditions

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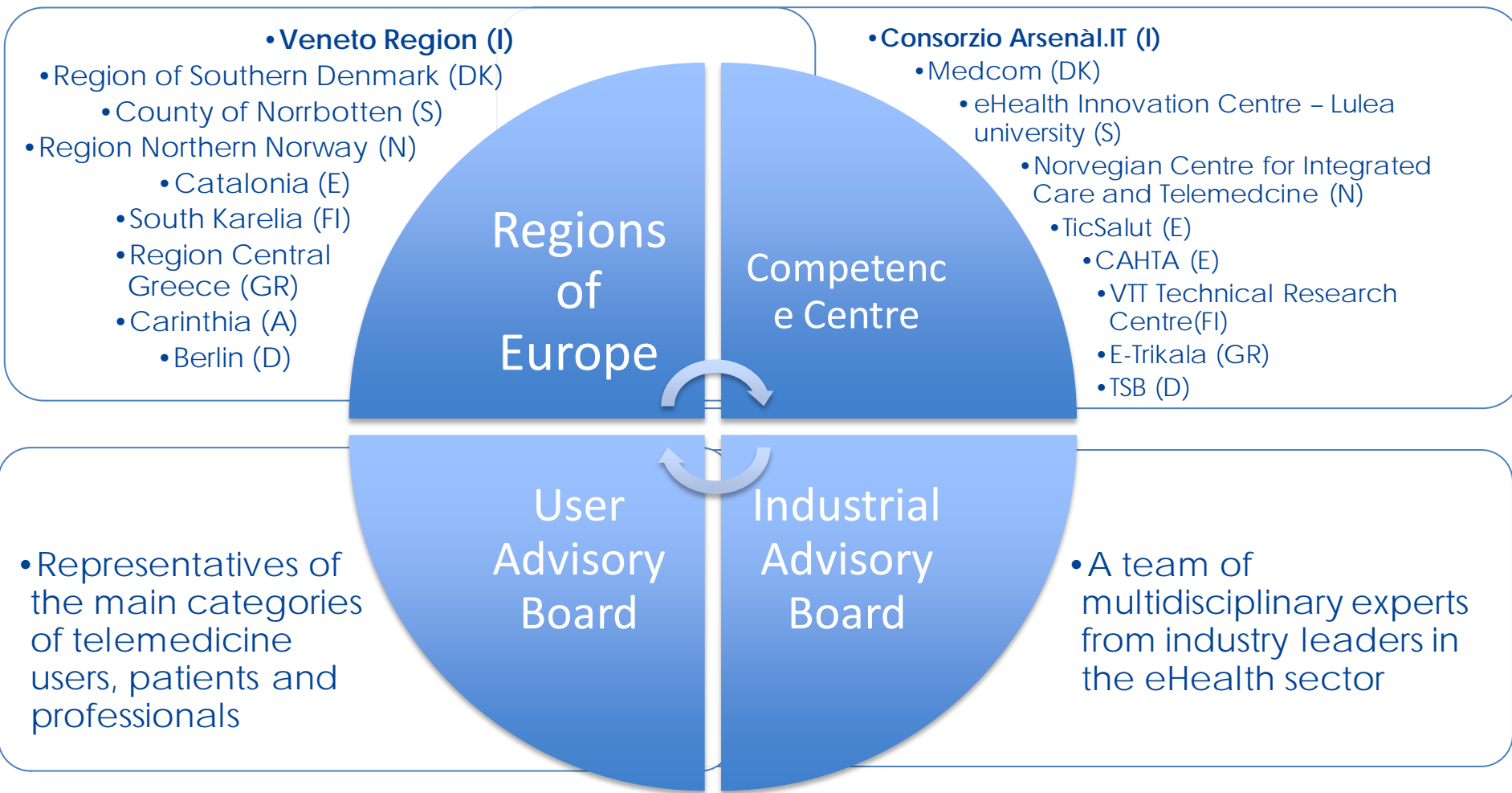
*Arsenà.IT – Veneto's Research Centre
for eHealth Innovation*

Bruxelles, 23rd January 2013



The overall background of the project is a number of EU conferences and reports describing telemonitoring and the potential benefits of a wider use of telemedicine applications in Europe.

Why telemonitoring is not widely diffused in health systems?



Validating, with a common rigorous assessment methodology (MAST), the use of Personal Health Systems for innovative types of Telemedicine services used to monitor chronic patients with

→ *Cardiovascular Disease (CVD),*

→ *Chronic Obstructive Pulmonary Disease (COPD)*

→ *Diabetes*

and prepare for their wider deployment.

HEALTH TECHNOLOGY ASSESSMENT

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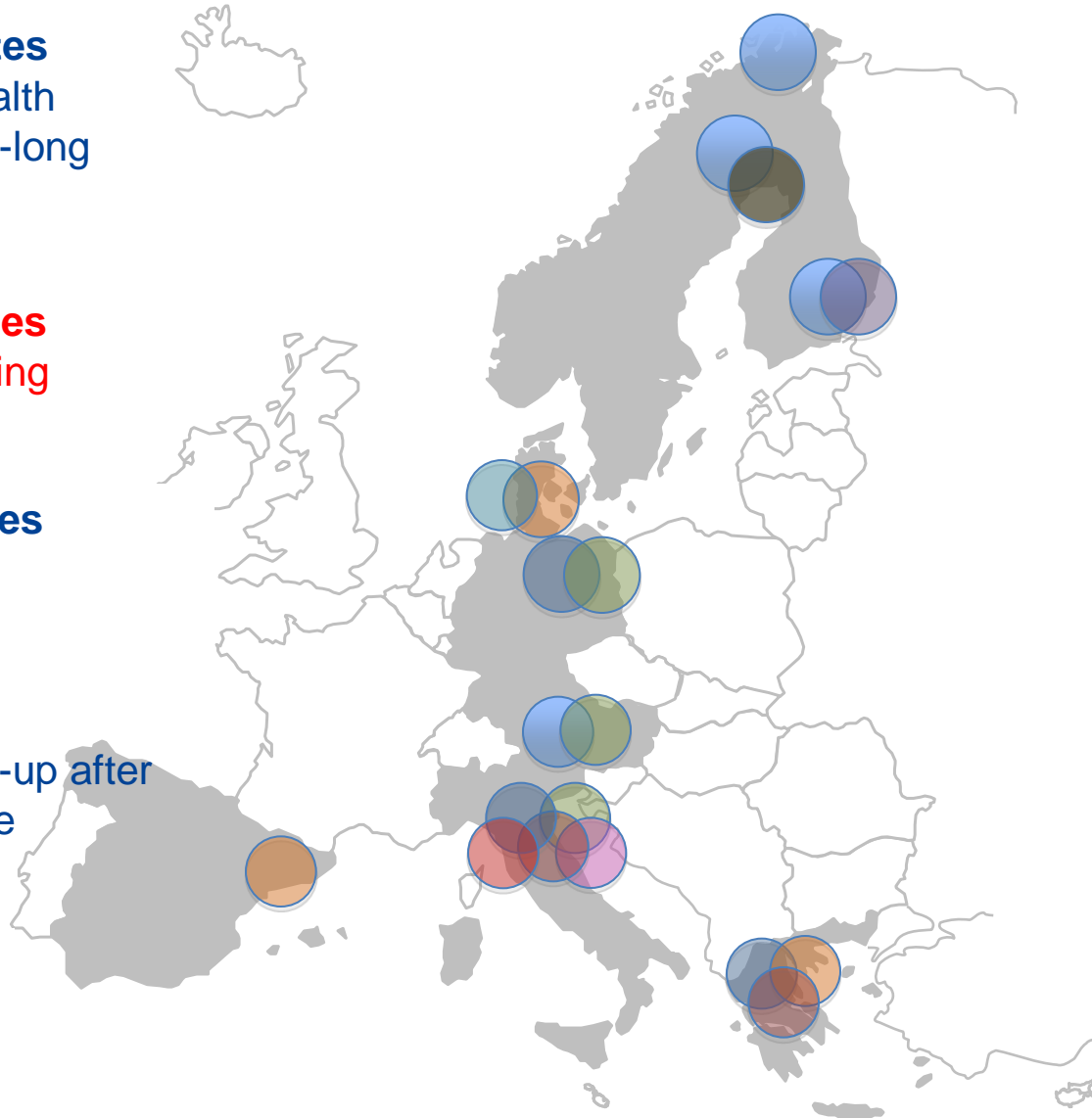
Cluster 1 Diabetes
Medium-term health
coaching and life-long
monitoring

Cluster 2 Diabetes
Life-long monitoring

Cluster 3 Diabetes
Ulcer monitoring

Cluster 4 COPD
Short-term follow-up after
hospital discharge

Cluster 5 COPD
Life-long
monitoring



Cluster 6 CVD
Medium-term health
coaching and life-long
monitoring

Cluster 7 CVD
Remote monitoring of
Congestive Heart
Failure

Cluster 8 CVD
Remote monitoring of
implantable cardiac
devices

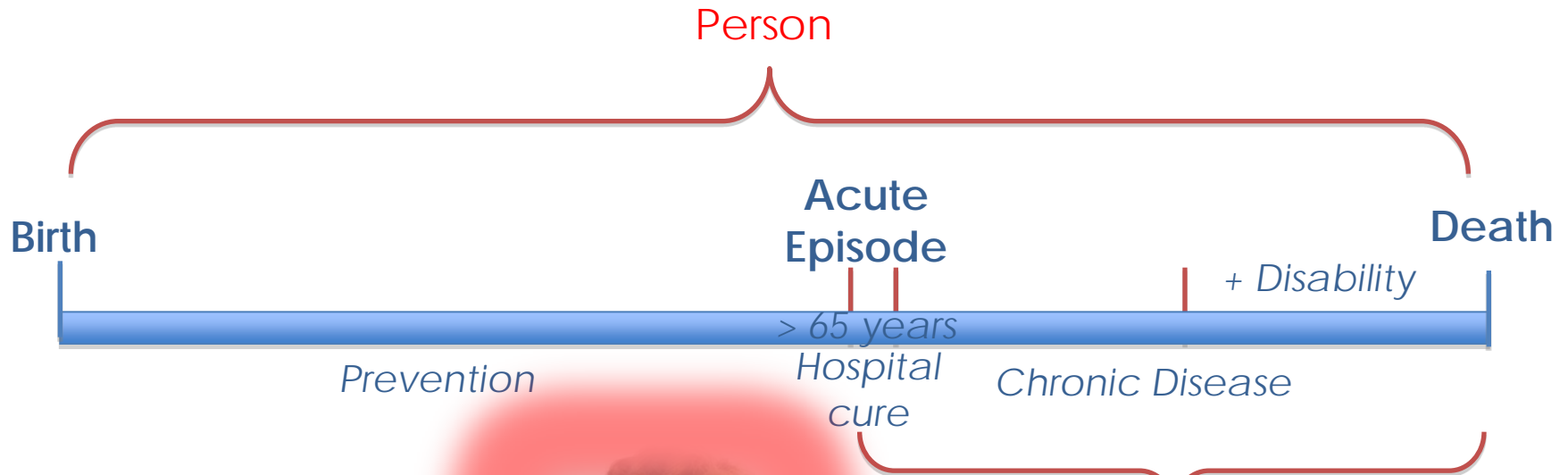
**Cluster 10 Multi
pathology**
Monitoring of frail
patients with chronic
diseases

Cluster 11 CVD
Congestive Heart
Failure with high blood
pressure

In the Veneto Region:*

- *20% of population is over 65*
- *16.5% of the elderly population is at risk of poverty*
- *68% of people over 75 years is suffering from at least two chronic degenerative diseases*
- *46% prevalence of multiple chronic diseases in the population aged between 65 and 74*

*“The area of chronicity is undoubtedly the issue worthy of **more attention** both in consideration of the **impacts on the quality and continuity of care provided** and because it absorbs **more than half** of the demand for services and resources. There is, therefore, the need to define **new models** of care characterized by a **multidisciplinary and interdisciplinary approach**. This new model have to be able to put in place mechanisms for the **integration** of health and social services, promoting the continuity of care and using **welfare and organizational solutions that must have clear scientific evidence and effectiveness**” **



Chronic Patient
INCREASE OF:

- Use of health care services
- Need of social care services



TELEHEALTH



Specialist



GP



Patient



ER

Social worker

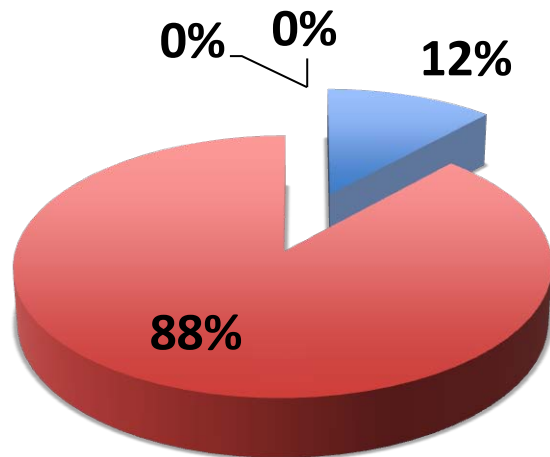


TELECARE

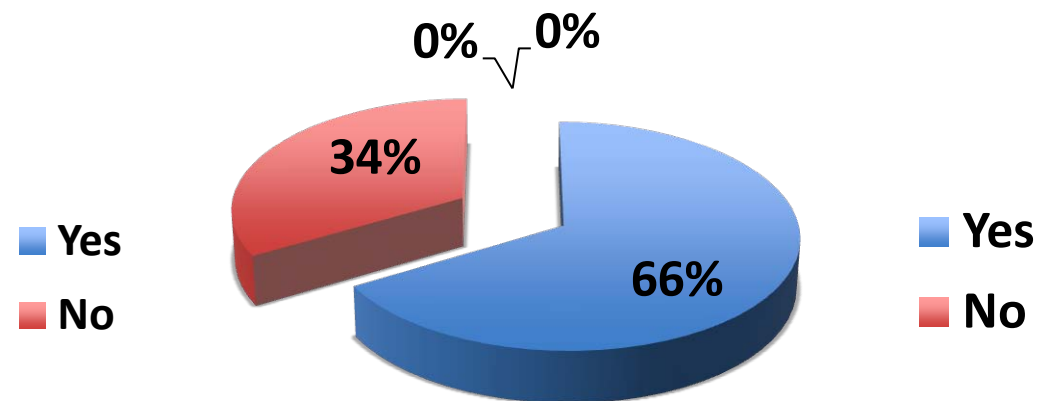
eHealth centre operator

	Intervention group	Control Group
Mean Age CHF	78,95	78,37

Familiar with PC



Familiar with mobile phone





Clinician introduces and proposes
the new service to the patient and her family



**CONFIDENCE AND
RELIABILITY**

Clinician explains:

- ✓ The telecare system
- ✓ Every steps of the telemonitoring service
- ✓ The use of device



DETAILED EXPLANATIONS



Clinician gives to the patient the
telemonitoring agenda

DETAILED and CLEAR PLAN of CARE

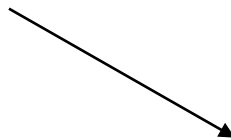
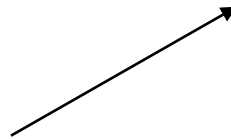
Telemonitoring agenda

	DAY							Time	
	M	T	W	T	F	S	S	AM	PM
SpO2, HR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9	<input type="checkbox"/>
Blood pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9	<input type="checkbox"/>
ECG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9	<input type="checkbox"/>
Weight	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9	<input type="checkbox"/>



Wrist clinic

- Heart Rate
- 1-lead ECG
- Blood pressure
- Regularity of rhythm
- Respiratory rate
- Blood oxygen saturation (SpO2)
- Body temperature



Digital weight scale

MEDIC GATE

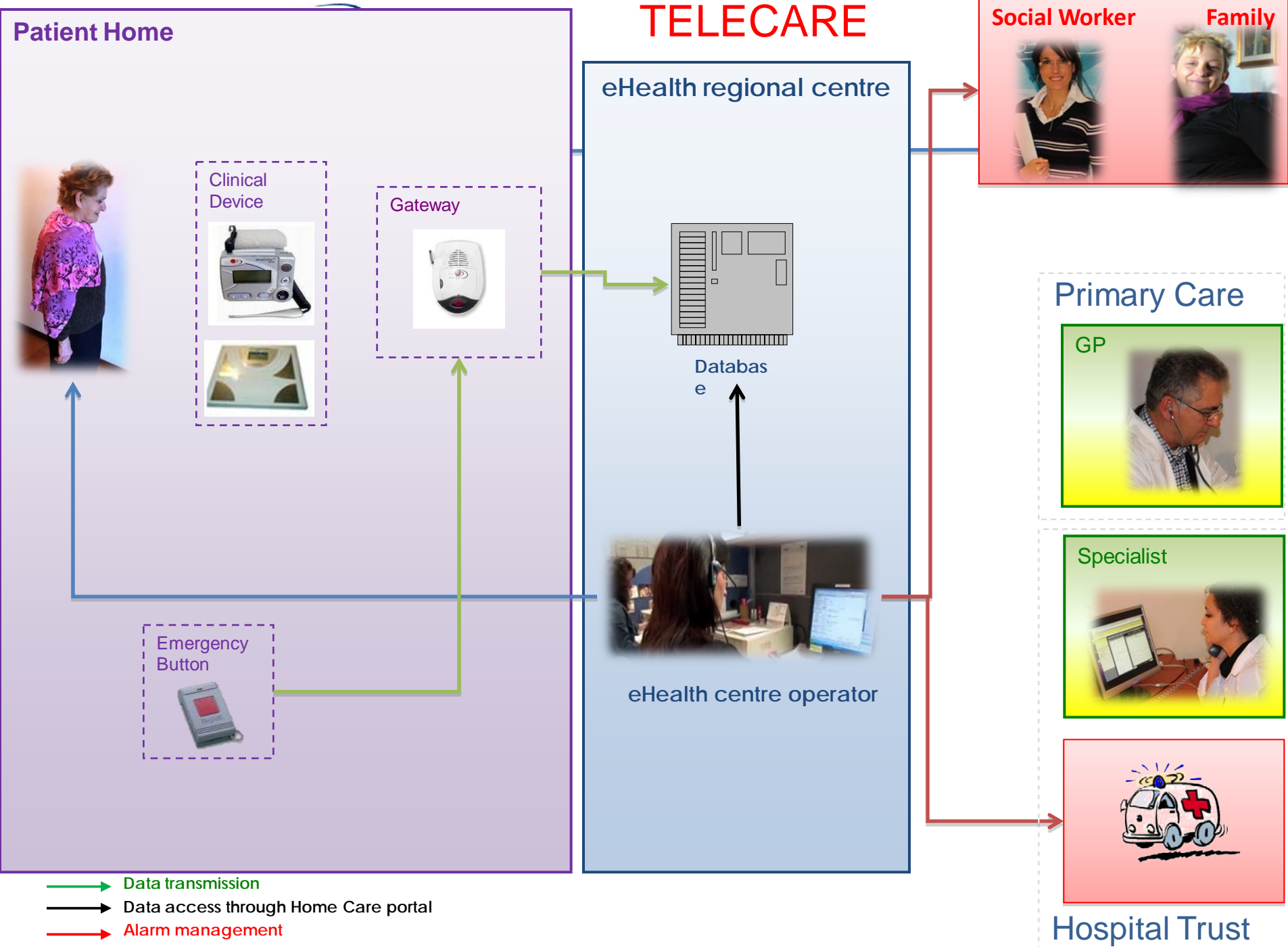


Emergency botton



Glucometer

TELECARE



TELEHEALTH



Patient Home

Clinical Device

Gateway

	DAY							Time	
	M	T	W	T	F	S	S	AM	PM
SpO2, HR	☒	☐	☒	☐	☒	☐	☐	9	☐
Blood pressure	☒	☐	☒	☐	☒	☐	☐	9	☐
ECG	☒	☐	☐	☐	☒	☐	☐	9	☐
Weight	☒	☒	☒	☒	☒	☐	☐	9	☐

Emergency Button

eHealth regional centre

Databas e

eHealth centre operator

Check the compliance with plan of care

Primary

GP

Specialist



Hospital Trust

- Data transmission
- Data access through Home Care portal
- Alarm management

TELEHEALTH

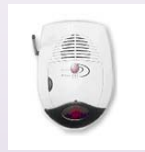


Patient Home

Clinical Device



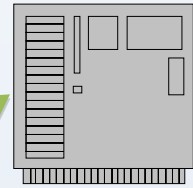
Gateway



Emergency Button



eHealth regional centre



Database



eHealth centre operator



Check the good quality of alarm

Manage the alarm following the thresholds fixed by clinicians

Social assistant Family



Primary Care

GP



Specialist



Hospital Trust

- Data transmission
- Data access through Home Care portal
- Alarm management

White code: no alarm situation, all measured data are in normal range.

Green code: the measured data are slightly out of normal range. The operator of the eHealth centre send an email to the clinician in order to inform him about the event. The clinician takes the proper action.

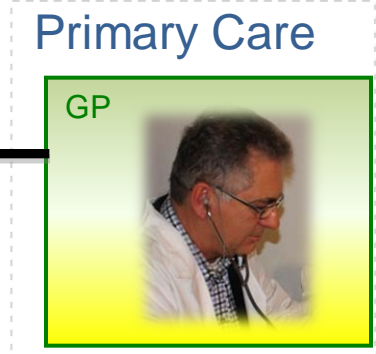
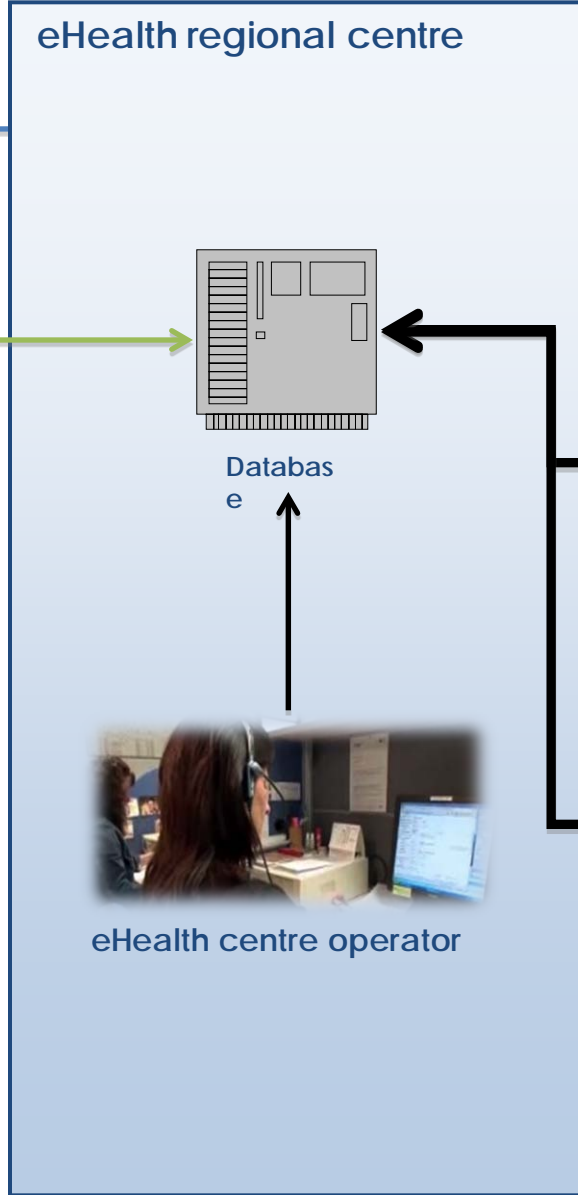
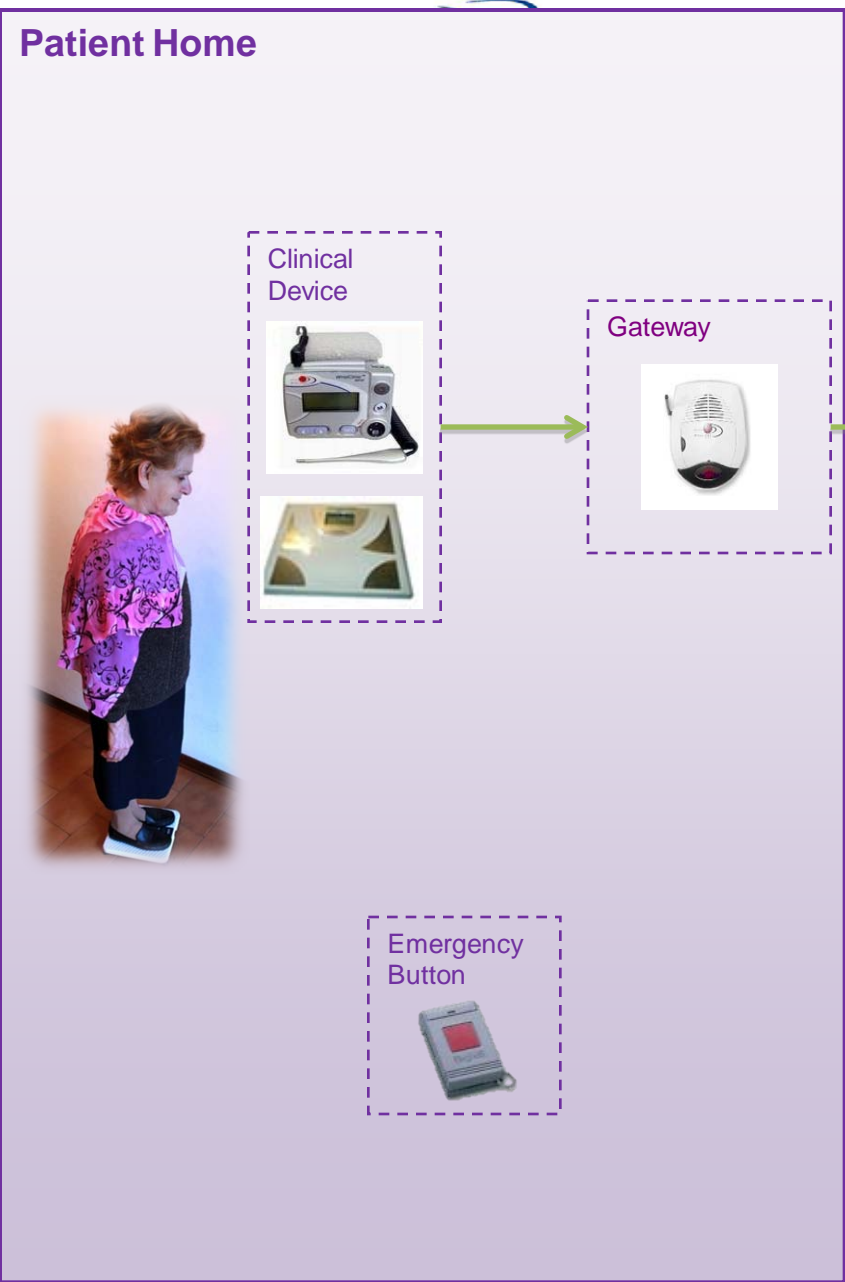
Yellow code: the measured data are out of normal range. The operator of eHealth centre phones to the referent clinician or send a sms in order to inform him about the event. The clinician takes the proper action.

Red code: Emergency situation. This type of alarm is manage with emergency protocol.

Telehealth service: 5/7 days and from 8.00 to 18.00

Telecare service: 7/7 days and 24/24 hours

TELEHEALTH



Hospital Trust

- Data transmission
- Data access through Home Care portal
- Alarm management

- **Feel safe**
- **Feel better**
- **Feel quiet**
- **I'm not a burden for my family**



- **Feel safe**
- **Feel quiet**
- **less working days lost**



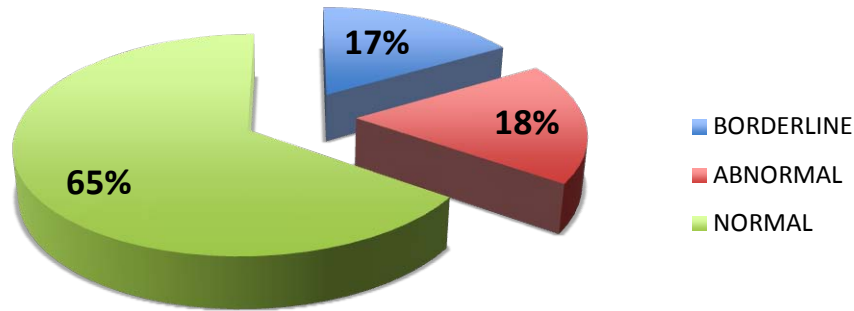
- **Early detection**
- **Second opinion**

- **Less use of resources**
- **Economic Saving**

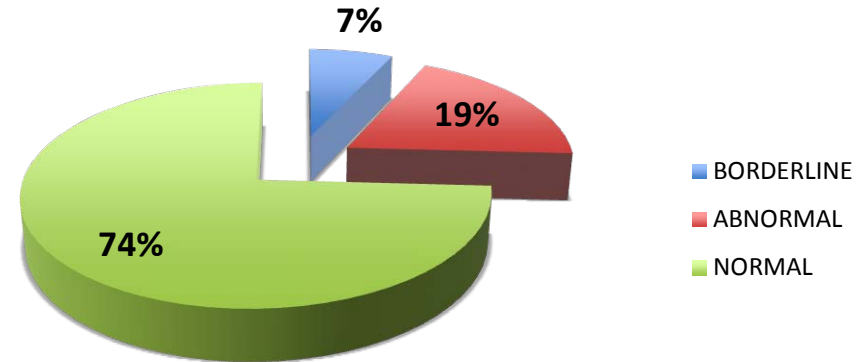


- **Health related quality of life**
 - SF-36v2 questionnaires
 - number of hospitalization
 - number of bed days for hospitalised patients.
 - number of specialist visits (both cardiology visits and generic specialist visits).
 - number of visits at emergency department
- **Hospital Anxiety and Depression Scale**
 - The HADS questionnaire measures the level of depression and anxiety of the patients enrolled.

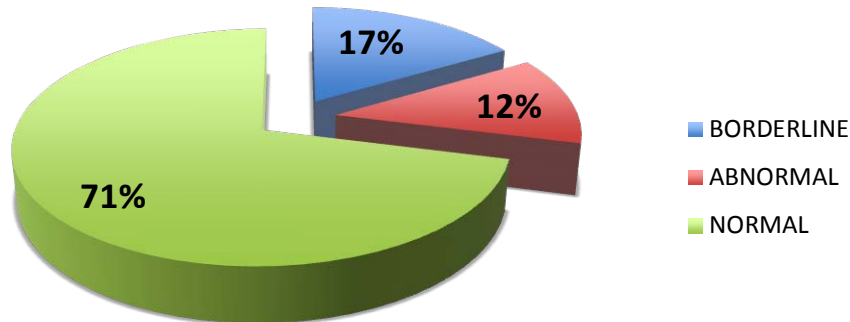
HADS STATO DEPRESSIONE I



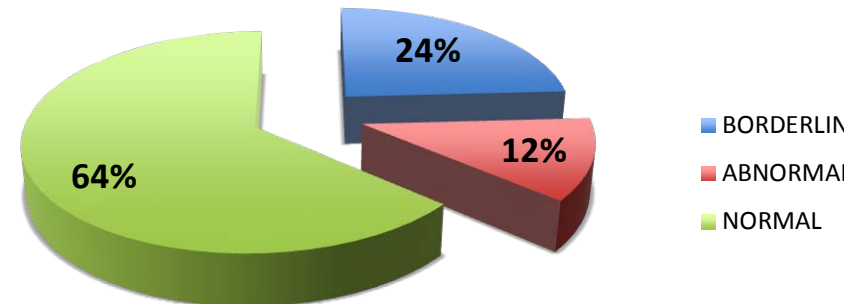
HADS STATO DEPRESSIONE C



HADS STATO ANSIA I



HADS STATO ANSIA C



- *The questionnaire, called Service User Technology Acceptability Questionnaire, has been developed by University College of London and it was used in Whole System Demonstrator pilots including approximately 3000 patients.*

- *Based on the answers to the statements six subscale can be estimated:*
 - ✓ *Enhanced care*
 - ✓ *Increased accessibility*
 - ✓ *Privacy and discomfort scale*
 - ✓ *Kit as substitution*
 - ✓ *Satisfaction*

It is necessary to:

- *decrease cultural barriers of patients and their family*
→ *clinicians, patient groups and Local Health Authorities*
- *pursue with the multidisciplinary and interdisciplinary approach*
→ *Technicians, Politicians, Clinicians, Social Sector*
- *To simplify the work of the clinicians and nurses, integrating the telemonitoring data in their EHR*
→ *Technicians*

Thank you for your attention
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www.renewinghealth.eu